

FORD ANALYTICAL LABORATORIES

CHEMICAL AND BACTERIOLOGICAL ANALYSIS

DATE: 07/14/92
CERTIFICATE OF ANALYSIS

CHEMSTAR LIME CO.
P.O. BOX 537
GRANTSVILLE, UT
84029

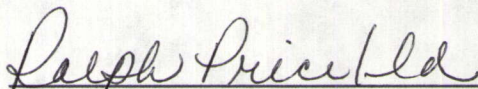
92-009129

SAMPLE: WATER SAMPLES COLLECTED 7-9-92 BY RICHARD BECKSTEAD
RECEIVED 7-10-92 FOR BACTERIA ANALYSIS STARTING AT 3:40 P.M.
UNDER PO #9-5008.

MF Coliform/100ml

FECAL COLIFORM

1	SPRING NW OF OFFICE 10:15 AM	NEG <1 SATISFACTORY
2	PLANT LABORATORY 10:10 AM	NEG <1 SATISFACTORY
3	POND AT PLANT ENTRANCE 10:25 AM	NEG <1 SATISFACTORY


FORD ANALYTICAL LABORATORIES

All reports are submitted as the confidential property of clients. Authorization for publication of our reports, conclusions, or, extracts from or regarding them, is reserved pending our written approval as a mutual protection to clients, the public and ourselves.

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CHEMICAL AND BACTERIOLOGICAL ANALYSIS

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CHEMSTAR LIME CO.
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GRANTSVILLE, UT
84029

92-009128

SAMPLE: WATER SAMPLE DISCHARGE TROFF AT HYDRATE BLDG. COLLECTED
7-9-92, 10:30 AM BY RICHARD BECKSTEAD RECEIVED 7-10-92 FOR
ANALYSIS STARTING AT 3:40 P.M. UNDER PO #9-5008.

RESULTS

=====

MPN Coliform/100 ml SM 9221B <2.0

MPN Fecal Coli/100 ml SM9221 <2.0

* ND Indicates Not Detected *

Ralph Price Ltd
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CHEMICAL AND BACTERIOLOGICAL ANALYSIS

CERTIFICATE OF ANALYSIS
DATE: 08/03/92

Why no sodium (Na) analyzed??

CHEMSTAR LIME CO.
P.O. BOX 537
GRANTSVILLE, UT
84029

92-025648

SAMPLE: WATER SAMPLES COLLECTED 7-9-92 RECEIVED 7-10-92 FOR
ANALYSIS UNDER PO #9-5008.

	#1 SPRING 10:15	#2 POND 10:25	#3 DISCHARGE 10:30	DETECTION LIMIT
=====	=====	=====	=====	=====
Alkalinity, CaCO ₃ mg/l EPA310.2	205	166	596	5.0
Bicarbonate, HCO ₃ mg/l FLM201	249	201	1.2	.1
Calcium Ca mg/l EPA 200.7	266.94	244.48	570.03	.01
Carbonate as CO ₃ mg/l FLM201	ND	.30	57.00	.10
Chloride, Cl mg/l EPA 300	10,000.00	9,075.00	265.50	.50
Cond. umhos/cm EPA 120.1	35,600	34,400	6,650	.1
Fluoride, F mg/l EPA 340.2	ND	ND	1.85	.10
Hardness, CaCO ₃ mg/l EPA 242	1,148	1,077	2,355	1.0
Magnesium Mg mg/l EPA 200.7	117.020	113.370	226.330	.030
Nitrate NO ₃ -N mg/l EPA 300	16.20	14.70	1.09	.10
Nitrite NO ₂ -N mg/l EPA 354	ND	ND	ND	.01
Oil and Grease mg/l EPA 413.2	ND	ND	ND	.5
Phosphorus Tot P mg/l EPA 365	ND	ND	ND	.10
Sulfate SO ₄ mg/l EPA 300	527	496	24.9	.5
Sulfide as S mg/l EPA 376.2	ND	ND	ND	.05
Susp. Solids mg/l EPA 160.2	9.0	10.0	1,170	.1

* ND Indicates Not Detected *

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CERTIFICATE OF ANALYSIS
PAGE: 2

92-025648

	#1 SPRING 10:15	#2 POND 10:25	#3 DISCHARGE 10:30	DETECTION LIMIT
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Tot.Dis.Solids mg/l EPA 160.1	17,086	15,716	1,442	.1
Tot.Kjel.Nit. ppm EPA 351.3	.84	1.50	.84	.50
pH Units EPA 150.1	7.00	7.50	12.00	

* ND Indicates Not Detected *


FORD ANALYTICAL LABORATORIES

Estimate of Reclamation Cost

<u>Description</u>	<u>Quantity</u>	<u>Unit</u>	<u>\$/Unit</u>	<u>Total Cost (\$)</u>
West Quarry Reclamation				
Scarify Benches to 12" depth	37,745	CY	0.10	3,775
Cover with 6" LS fines	18,870	CY	0.65	12,265
Reseed & Fertilize	23.4	Acres	250.00	5,850
Subtotal				21,890
State Leased Property				
Scarify Benches to 12" Depth	4,355	CY	0.10	435
Cover with 6" LS fines	2,177	CY	0.65	1,415
Reseed & Fertilize	2.7	Acres	250.00	675
Subtotal				2,525
Waste Rock Area				
Grade to 2H:1V Slope	6,400	CY	0.30	1,920
Cover with 6" LS fines	1,600	CY	0.65	1,040
Reseed & Fertilize	2.0	Acres	250.00	500
Subtotal				3,460
Haul Road From Quarry & Access Roads				
Scarify to 12" Depth & Regrade	8,070	CY	0.20	1,615
Reseed & Fertilize	5.0	Acres	250.00	1,250
Subtotal				2,865
Waste Lime Dump				
Grade to 3H:1V Slope	28,800	CY	0.30	8,640
Cover with 6" LS fines	7,200	CY	0.65	4,680
Reseed & Fertilize	9.0	Acres	250.00	2,250
Subtotal				15,570
Fines Stockpile				
Grade to 3H:1V Slope	8,165	CY	0.30	2,450
Reseed & Fertilize	4.0	Acres	250.00	1,000
Subtotal				3,450
Wastewater Pond				
Remove Sediments to dump	15,800	CY	0.65	10,270
Cover with 6" LS fines	10,400	CY	0.65	6,760
Reseed & Fertilize	13.0	Acres	250.00	3,250
Subtotal				20,280
Plant Site				
Demolition	Lump Sum			????
Remove Trash	17.0	Acres	100.00	1,700
Regrade & Contour	17.0	Acres	430.00	7,310
Reseed & Fertilize	17.0	Acres	250.00	4,250
Subtotal				13,260

SIGNATURE REQUIREMENT:

Applicant Certification

I hereby certify that the foregoing is true and correct:

RA Johnson Plant Manager
Signature of Authorized Representative of Chemstar Lime Company.

Date: Dec 22, 1991

SOIL TEST REPORT and FERTILIZER RECOMMENDATIONS

SOIL TESTING LABORATORY

Utah State University UMC 48
Logan, Utah 84322
(801) 750-2217

Name CHEMSTAR LIME COMPANY
Street PO BOX 537
City, State GRANTSVILLE, UTAH 84029
ZIP

Date 7/14/92

SAMPLE IDENT.	CROP TO BE GROWN	SOIL TEXTURE	LAB NO.
OVERBURDEN		SI CL LO	962
2) CHAT		SAND	963
3)			
4)			

Copy sent to Extension office
in TOOELE County.

SOIL TEST RESULTS	Very Low	Low	Adequate/Normal	High	Very High	RECOMMENDATIONS	Notes
NITRATE-NITROGEN N ppm	1) <u>2.0</u> 2) <u>33</u> 3) <u></u> 4) <u></u>					<u>90-110</u> <u>90-110</u> N lbs/A	<u>a, b, c</u> <u>a, c</u>
PHOSPHORUS P ppm	1) <u>3.9 *****</u> 2) <u>1.5 **</u> 3) <u></u> 4) <u></u>					<u>90-110</u> <u>190-210</u> P ₂ O ₅ * lbs/A	<u>d</u> <u>d</u>
POTASSIUM K ppm	1) <u>386 *****</u> 2) <u>68 *****</u> 3) <u></u> 4) <u></u>					<u>0</u> <u>50-100</u> K ₂ O* lbs/A	<u>d</u>
SALINITY EC _e mmhos/cm	1) <u>.6 *****</u> 2) <u>4.5 *****</u> 3) <u></u> 4) <u></u>						<u>e</u>
pH	1) <u>8.2 *****</u> 2) <u>8.2 *****</u> 3) <u></u> 4) <u></u>						
LIME	1) <u>++ *****</u> 2) <u>++ *****</u> 3) <u></u> 4) <u></u>						
SAR	1) <u>1.8</u>						
SAR	1) <u>5.3</u>						
OSP	2) <u>43</u>						
SP	2) <u>18</u>						

NOTES:

* P₂O₅ x .45 = P K₂O x .82 = K

- N recommendations tend to be high when based on N tests at non-standard soil depth. See sampling instructions.
- When N in topsoil is very low, some N is needed to supply early crop needs.
- See Note 4 on reverse.
- See Note 6 on reverse.
- See Note 10a on reverse.

SP = Saturation Percentage

Please contact your county agent or this
lab for further assistance.

You may need to modify these recommendations in order to achieve maximum economic return under your specific conditions of weather, finances and management.

1. There is no indication that N fertilizer will increase yield or quality of alfalfa. If grain is to be seeded with new alfalfa, do not apply more than 50 lbs N/acre.

2. **Pasture and Meadows** Split N applications help to maintain yield and protein content throughout the season. Half of the year's application can be done in the fall if it is watered in immediately or injected directly into the sod (early spring application is also effective). The second half can be broadcast after the first cutting in the spring just before irrigating. Do not apply more than 75 lbs. of N at one time. See also Note 4 below.

Mixed legume-grass pastures containing more than 1/3 legume may not benefit from added N.

3. A valid N test requires sampling at least 0-1 and 1-2 feet, and quick drying of the sample (see sampling instructions). If your sample did not meet these requirements, the nitrate-N value reported was not used in our recommendations unless it was unusually high. You may multiply ppm N by 4 to estimate pounds of N in 1 acre-foot of soil as tested.

4. Fertilizer N can be lost through leaching under conditions of excess irrigation or rainfall. Its management is therefore of special importance. In cases of high N rates, sandy soils, or long-season crops, split applications will increase plant use of the fertilizer N, avoid late season deficiency, and reduce leaching losses. For annual crops, split applications of N also offer the opportunity to adjust the rate during the season according to the yield prospect.

Fall application of N is feasible on medium to heavy soils in areas of low to moderate rainfall.

5. **Potatoes** For potatoes, apply 1/3 of N preplant, the rest during the growing season. Follow petiole N. Avoid high N late in the season. See also Note 4 above.

6. **Phosphorus (P) and Potassium (K)** Plowdown or band applications are preferred for all new seedings. For established perennial crops such as alfalfa and pasture, broadcast recommended fertilizer at earliest possible date.

Subsoil P and K levels can affect crop responses to fertilizer P or K.

7. Your soil sample is low or marginal in available potassium (K). the amount of K supplied by the irrigation water can thus be important. Mountain streams near their sources, and some city water supplies and wells are low in K. Several major Utah irrigation waters carry enough K to supply crop needs.

8. **Dryland Production** Response to fertilizer on drylands is highly dependent on available moisture. Fall applications are usually most effective.

Phosphate must be incorporated into the soil by tillage or drilled with the seed.

Nitrogen applied broadcast prior to planting

should be incorporated by tillage as soon as possible.

Spring applications of nitrogen can be made on unfrozen soil in March or early April, when the probability of rain is highest.

In years of exceptionally good soil moisture, apply the highest amount of N within the range given. In average years, amounts toward the middle of the range are preferred. If winter precipitation has been unusually high, additional N should be applied in the spring.

9. **Micronutrients** Utah soils are generally well supplied with micronutrients. "Shotgun" applications of mixtures containing boron, manganese, iron and copper "for insurance" have not been shown to be effective and are not suggested.

Zinc deficiencies have been identified in sensitive crops in some areas. Excessive phosphorus may induce zinc deficiency.

If soil zinc is Very Low, apply 10 lbs. of zinc per acre; if Low, apply 5 lbs per acre, all preplant.

In-season zinc deficiency may be corrected by spraying the crop with zinc sulfate solution. Consult qualified dealers for details of application methods and rates.

Occurrence of **iron** deficiency is primarily related to crop variety (root stock for orchards and vines). **Soil tests for predicting iron availability have not yet proved to be reliable.**

Iron deficiencies occur most often in wet soils high in lime. Excessive P or overwatering may aggravate the problem. Heavy applications of manure can cause iron deficiency in sensitive plants.

Soil application of inorganic iron compounds such as iron sulfate is not effective in Utah soils. Iron chelates vary in effectiveness, Fe EDDHA or Fe 138 being the best tested so far. Plant deficiencies may be corrected by spraying foliage with iron sulfate solution, repeating as necessary if symptoms persist. Consult specialists for details of methods and rates.

- 10a. This sample shows a slight to moderate accumulation of salt, sufficient to affect growth of sensitive crops. If subsoil drainage is adequate, applying an excess of good quality water can reduce salts to an acceptable level. If pH is also HIGH, special treatment may be needed to reduce sodium.

- 10b. This sample shows a high accumulation of salt, toxic to many crops. It is also high in sodium and will require special treatment before fertilizers are applied. Seek qualified assistance.

11. The standard soil sample depth is from surface down to 12 inches (see instructions on back of Sample Description sheet) If your sample depth was much different from this, test results may be misleading.

USU Policy It is the policy of the USU Soil Testing Laboratory to recommend only those nutrients that offer a reasonable possibility of increasing the economic return for your crops, and in those amounts that should be necessary to achieve your yield capability. Ranges of nutrients are given, to permit farm operator judgment.